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(71) Applicant (for all designated States except US):
WILLIAM MARSH RICE UNIVERSITY [US/US];
6100 Main Street, Houston, 77005 (US).

(72) Inventor; and

(75) Inventor/Applicant (for US only): **KOSTEREV, Ana-**
toly [RU/US]; 2003 McClendon St. Apt. 4, Houston, TX
77030 (US).

(74) Agents: **WATKINS, Marcella, D.** et al.; **CONLEY ROSE,**
P. C., P.O. Box 3267, Houston, TX 77253-3267 (US).

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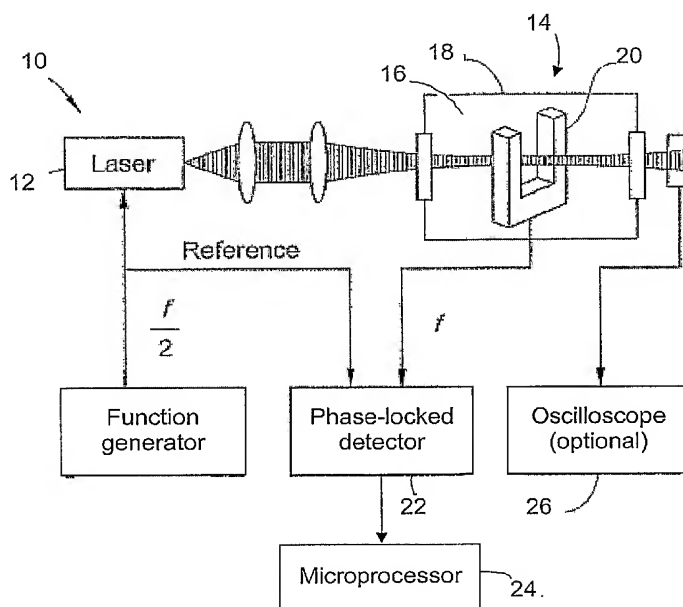
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(54) Title: SELECTIVITY ENHANCEMENT IN PHOTOACOUSTIC GAS ANALYSIS VIA PHASE-SENSITIVE DETECTION AT HIGH MODULATION FREQUENCY



(57) Abstract: A method for detecting a target fluid in a fluid sample comprising a first fluid and the target fluid using photoacoustic spectroscopy (PAS), comprises a) providing a light source configured to introduce an optical signal having at least one wavelength into the fluid sample; b) modulating the optical signal at a desired modulation frequency such that the optical signal generates an acoustic signal in the fluid sample; c) measuring the acoustic signal in a resonant acoustic detector; and d) using the phase of the acoustic signal to detect the presence of the target fluid.

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